上海源叶生物科技有限公司
Shanghai yuanye Bio-Technology Co., Ltd
电话：021-61312973　　传真：021-55068248
网址：www.shyuanye.com
邮箱：shyysw@sina.com

产品名称：YM244769
CAS 号：838819-70-8
产品货号：S89845

生物活性：

Description	YM-244769 is a potent, selective and orally active Na+/Ca2+ exchanger (NCX) inhibitor. YM-244769 preferentially inhibits NCX3 and suppresses the unidirectional outward NCX current (Ca2+ entry mode), with IC50s of 18 nM and 50 nM, respectively. YM-244769 efficiently protects against hypoxia/reoxygenation-induced SH-SY5Y neuronal cell damage. YM-244769 can also increase urine volume and urinary excretion of electrolytes in mice[1][2][3].
IC50 & Target	IC50: 18 nM (NCX3), 68 nM (NCX1), 96 nM (NCX2)[1]
In Vitro	YM-244769 (0.003-1 μM) inhibits dose dependently the initial rates of 45Ca2+ uptake into NCX1, NCX2, and NCX3 transfectants with IC50 values of 68 ± 2.9, 96 ± 3.5, and 18 ± 1.0 nM, respectively[1]. YM-244769 (0.3 or 1 μM) efficiently protects against the hypoxia/reoxygenation-induced lactate dehydrogenase (LDH) release in SH-SY5Y cells and in LLC-PK1 cells (1 μM)[1]. YM-244769 possesses reverse mode-selectivity[1]. YM-244769 (1 and 10 μM) inhibits NCX current (INCX) in a concentration- and [Na+]i-dependent manner, the IC50 against the unidirectional outward INCX (Ca2+ entry mode) is 0.05 μM. The IC50 values against the bidirectional outward and inward INCX are similar and approximately 100 nM with a Hill coefficient of about 1[3]. YM-244769 is trypsin-insensitive[3]. **Cell Viability Assay[1]** Cell Line: SH-SY5Y cells treated with NCX1 or NCX3 antisense Concentration: 0.3 and 1 μM Incubation Time: Result: Hypoxia/reoxygenation-induced LDH release was significantly attenuated: reduction in cell damage was greater in cells treated with NCX3 antisense (by 61%) than in cells treated with NCX1 antisense (by 35%). 0.3 or 1 μM efficiently suppressed the hypoxia/reoxygenation-induced cell damage in SH-SY5Y cells treated with NCX1 antisense more than in those treated with NCX3 antisense.
In Vivo	YM-244769 (0.1-1 mg/kg; p.o.; once) exhibits dose-dependently natriuretic action in mice and significantly increases urinary excretion of Ca2+ as well as Ca2+/Cr ratio[2]. **Animal Model:** Wild-type C57BL/6J mice and NCX-KO mice[2] **Dosage:** 0.1, 0.3 and 1 mg/kg **Administration:** Oral administration, once **Result:** Caused a dose-dependent increase (up to approximately 200%) in urine volume and urinary excretion of electrolytes (Na^+, K^+ and Cl^-). Natriuretic actions were equivalently observed in NCX1-KO and WT, but disappeared in NCX2-KO and double KO.
Solvent&Solubility	**细胞实验:** DMSO 中的溶解度 ：120 mg/mL (270.59 mM; 超声助溶; 吸湿的 DMSO 对产品的溶解度有显著影响，请使用新开封的 DMSO)

上海源叶生物科技有限公司
Shanghai yuanye Bio-Technology Co., Ltd
电话：021-61312973　　传真：021-55068248
网址：www.shyuanye.com
邮箱：shyysw@sina.com

	Preparing Stock Solutions	**Solvent / Mass / Concentration**	**1 mg**	**5 mg**	**10 mg**
		1 mM	2.2549 mL	11.2747 mL	22.5494 mL
		5 mM	0.4510 mL	2.2549 mL	4.5099 mL
		10 mM	0.2255 mL	1.1275 mL	2.2549 mL

* 请根据产品在不同溶剂中的溶解度选择合适的溶剂配制储备液；一旦配成溶液，请分装保存，避免反复冻融造成的产品失效。

储备液的保存方式和期限：-80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)。-80°C 储存时，请在 6 个月内使用，-20°C 储存时，请在 1 个月内使用。

动物实验：

请根据您的 实验动物和给药方式 选择适当的溶解方案。

以下溶解方案都请先按照 In Vitro 方式配制澄清的储备液，再依次添加助溶剂：

——为保证实验结果的可靠性，澄清的储备液可以根据储存条件，适当保存；体内实验的工作液，建议您现用现配，当天使用；

以下溶剂前显示的百分比是指该溶剂在您配制终溶液中的体积占比；如在配制过程中出现沉淀、析出现象，可以通过加热和/或超声的方式助溶

方案 一

请依序添加每种溶剂： 10% DMSO → 90% Corn Oil

Solubility: ≥ 2.08 mg/mL (4.69 mM); 澄清溶液

此方案可获得 ≥ 2.08 mg/mL（饱和度未知）的澄清溶液，此方案实验周期在半个月以上的动物实验酌情使用。

以 1 mL 工作液为例，取 100 μL 20.8 mg/mL 的澄清 DMSO 储备液加到 900 μL 玉米油中，混合均匀。

参考文献

[1]. Iwamoto T, Kita S. YM-244769, a novel Na+/Ca2+ exchange inhibitor that preferentially inhibits NCX3, efficiently protects against hypoxia/reoxygenation-induced SH-SY5Y neuronal cell damage. Mol Pharmacol. 2006 Dec;70(6):2075-83.

[2]. Gotoh Y, et al. Genetic knockout and pharmacologic inhibition of NCX2 cause natriuresis and hypercalciuria. Biochem Biophys Res Commun. 2015 Jan 9;456(2):670-5.

[3]. Yamashita K, et al. Inhibitory effect of YM-244769, a novel Na+/Ca2+ exchanger inhibitor on Na+/Ca2+ exchange current in guinea pig cardiac ventricular myocytes. Naunyn Schmiedebergs Arch Pharmacol. 2016 Nov;389(11):1205-1214.

完整储备液配制表：

* 请根据产品在不同溶剂中的溶解度选择合适的溶剂配制储备液；一旦配成溶液，请分装保存，避免反复冻融造成的产品失效。 储备液的保存方式和期限：-80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)。-80°C 储存时，请在 6 个月内使用，-20°C 储存时，请在 1 个月内使用。

可选溶剂	**质量 / 溶剂体积 / 浓度**	**1 mg**	**5 mg**	**10 mg**	**25 mg**
DMSO	**1 mM**	2.2549 mL	11.2747 mL	22.5494 mL	56.3736 mL
	5 mM	0.4510 mL	2.2549 mL	4.5099 mL	11.2747 mL
	10 mM	0.2255 mL	1.1275 mL	2.2549 mL	5.6374 mL

上海源叶生物科技有限公司
Shanghai yuanye Bio-Technology Co., Ltd
电话：021-61312973　　传真：021-55068248
网址：www.shyuanye.com
邮箱：shyysw@sina.com

	15 mM	0.1503 mL	0.7516 mL	1.5033 mL	3.7582 mL
	20 mM	0.1127 mL	0.5637 mL	1.1275 mL	2.8187 mL
	25 mM	0.0902 mL	0.4510 mL	0.9020 mL	2.2549 mL
	30 mM	0.0752 mL	0.3758 mL	0.7516 mL	1.8791 mL
	40 mM	0.0564 mL	0.2819 mL	0.5637 mL	1.4093 mL
	50 mM	0.0451 mL	0.2255 mL	0.4510 mL	1.1275 mL
	60 mM	0.0376 mL	0.1879 mL	0.3758 mL	0.9396 mL
	80 mM	0.0282 mL	0.1409 mL	0.2819 mL	0.7047 mL
	100 mM	0.0225 mL	0.1127 mL	0.2255 mL	0.5637 mL